List of Current Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 - 12 (Cancelled).

13. (New) A method for measuring a fill level of a fill substance in a container and for monitoring at least one predetermined fill level (L_{MIN}, L_{MAX}), using a fill level measuring device working according to a travel-time principle, comprising the steps of:

sending, in each measuring cycle, transmission signals (S) toward the fill substance and receiving their echo signals (E);

determining the fill level, based on the echo signals (E), according to a first evaluation, and based on the echo signals (E), according to a second evaluation independent of the first evaluation; and

observing whether the fill level exceeds or falls beneath the predetermined fill level (L_{MIN}, L_{MAX}).

14. (New) A method for measuring a fill level of a fill substance in a container and for monitoring at least one predetermined fill level (L_{MIN}, L_{MAX}), using a fill level measuring device working according to a travel-time principle, comprising the steps of:

sending, in a fill level measuring cycle, transmission signals (S) toward the fill substance and receiving their echo signals (E);

determining the fill level, based on the echo signals registered in the fill level measuring cycle, according to a first evaluation;

sending in a limit level measuring cycle, transmission signals (S) toward the fill substance and receiving their echo signals (E); and determining, based on the echo signals registered in the limit level measuring cycle, according to a second evaluation independent of the first evaluation, whether the fill level exceeds or falls beneath the predetermined fill levels (L_{MIN}, L_{MAX}).

15. (New) The method as claimed in claim 13, wherein:

the echo signals (E) applied for determining the fill level are conditioned by a first signal processing branch of the fill level measuring device.

16. (New) The method as claimed in claim 13, wherein:

the echo signals (E) applied for detecting the exceeding or falling beneath of the fixedly predetermined fill levels (L_{MIN}, L_{MAX}) are conditioned by a second signal processing branch of the fill level measuring device.

17. (New) The method as claimed in claim 13, further comprising the steps of:

deriving an echo function from the echo signals (E) which represents an amplitude of the echo signals (E) as a function of travel-time (t) for determining the exceeding or falling beneath of the predetermined fill levels (L_{MIN}, L_{MAX}); and

determining a measure for the area under the echo function in a region (I, II) of particular travel-time (t_{MIN}, t_{MAX}) to be expected for the predetermined fill level (L_{MIN}, L_{MAX}) wherein:

it is detected that the fill level exceeds the particular predetermined fill level (L_{MIN}, L_{MAX}) when the measure exceeds a predetermined reference measure; and

it is detected that the fill level falls beneath the particular predetermined fill level (L_{MIN}, L_{MAX}) when the measure falls beneath a predetermined reference measure.

18. (New) The method as claimed in claim 16, wherein:

said measure corresponds to an integral over the echo function in the region (I, II) of the particular travel-time (t_{MIN}, t_{MAX}) to be expected for the predetermined fill level (L_{MIN}, L_{MAX}).

19. (New) The method as claimed in claim 17, wherein:

said measure corresponds to an average value, median or maximum of the amplitudes of the echo function in the region (I, II) of the travel-time (t_{MIN}, t_{MAX}) to be expected for the predetermined fill level (L_{MIN}, L_{MAX}).

20. (New) The method as claimed in claim 13, further comprising the steps of:

deriving an echo function from the echo signals (E), which represents an amplitude of the echo signals (E) as a function of a travel-time (t) for determining the exceeding or falling beneath of the predetermined fill levels (L_{MIN}, L_{MAX});

determining a first measure for area under the echo function in the region (I, II) of a particular travel-time (t_{MIN}, t_{MAX}) to be expected for a particular predetermined fill level (L_{MIN}, L_{MAX});

a comparison measure is, in the same way, determined for a predetermined reference region (R) of the echo function, and, based on a comparison of the particular first measure with the comparison measure, it is determined whether the fill level exceeds or falls beneath the particular predetermined fill level (L_{MIN}, L_{MAX}).

21. (New) The method as claimed in claim 13, wherein:

based on results of the second evaluation, a plausibility check is carried out for results of the first evaluation method.

22. (New) The method as claimed in claim 15, wherein:

the fill level measuring device works with ultrasound, for determining whether one of the predetermined fill levels (L_{MIN}, L_{MAX}) has been exceeded or fallen beneath, and emits transmission signals of a fixedly predetermined transmission frequency.

23. (New) A fill level measuring device working according to the travel-time principle, comprising:

a sending and receiving element for sending transmission signals (S) and for receiving their echo signals (E); a first evaluation module for executing a first evaluation method for determining fill level; and

a second evaluation module for executing a second evaluation method for detecting an exceeding or falling beneath of at least one fixedly predetermined fill level (L_{MIN}, L_{MAX}).

24. (New) The fill level measuring device as claimed in claim 23, further comprising:

a first signal processing branch for conditioning echo signals (E) applied for determining the fill level; and

a second signal processing branch for conditioning echo signals (E) applied for detecting the exceeding or falling beneath of the fixedly predetermined fill levels (L_{MIN}, L_{MAX}).